

2019 JAN 29 PM 2:15

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

2019 FEB -1 PM 2:17

In re Application of)
)
Apple 107.1, Inc.)
)
For modification of the facilities)
of FM Translator Station W292DV,)
Long Island City, New York)
)

File No. BPFT- 20190122AHG

Accepted / Filed

To: Marlene H. Dortch, Secretary

JAN 31 2019

For transmission to: Albert Shuldiner, Chief
Audio Division, Media Bureau

Federal Communications Commission
Office of the Secretary

**PETITION TO DISMISS OR DENY OR,
IN THE ALTERNATIVE, INFORMAL OBJECTION**

1. Press Communications, LLC ("Press"), licensee of Station WKMK(FM), Eatontown, New Jersey, hereby petitions to dismiss or deny the above-captioned application of Apple 107.1, Inc. ("Apple") for modification of the facilities of FM Translator Station W292DV ("the Translator"). As set forth below, the application fails to provide adequate information from which to determine that the proposed change will not result in harmful interference to any full-service FM station – including WKMK – in the highly-congested New York City market. Unless and until such information is provided by Apple, and a fact-based determination (as further discussed below) is made that no interference will occur, Apple's application cannot be granted.

BACKGROUND

2. The Commission's records amply demonstrate that the Apple translator has been a source of controversy for nearly a decade already. Apple initially applied for its translator in 2003, specifying Channel 296 as its operating channel. That application was granted in 2009.

The Translator does not appear ever to have operated on Channel 296. Instead, by an application (File No. BMPFT- 20100812ACG) granted on February 25, 2011, Apple moved from Channel 296 to Channel 293. Before the ink was even dry on that permit, however, Apple filed another application (File No. BPFT-20110225ABV) proposing yet another channel change, to Channel 292 – co-channel to Station WKMK. That application was granted and in early May, 2011, Apple commenced operation.

3. Apple's apparent difficulty in settling on a channel to use was presumably exacerbated by, if not wholly attributable to, the fact that Apple was trying to squeeze a secondary service translator into perhaps the most spectrum-congested geographic market in the country. Operation on any channel from its originally-authorized site in mid-town Manhattan promised to cause interference to full-powered FM stations serving well-established audiences within the translator's service area. And sure enough, as soon as Apple commenced operation in May, 2011, Press was immediately notified by hundreds of WKMK listeners that they were suddenly experiencing substantial interference to their reception of Station WKMK. Such interference should not have surprised anyone, given the geographic proximity of the Apple Translator and WKMK and the fact that they were operating on the same frequency, *i.e.*, 106.3 MHz. Press brought the interference complaints to the Commission's attention on May 9, 2011, submitting the names and addresses of several hundred listeners who had complained to Press. By May 12, 2011, the Commission had ordered Apple to cease operation of its translator.

4. Apple then filed yet another application (File No. BPFT- 20111018ABX) to move to yet another channel, this time Channel 284. That move was opposed by the licensee of WSPK, which operates on Channel 284. Presumably recognizing that that avenue was not available to it, in February, 2012, Apple amended its application to return to Channel 292 with different

facilities (*i.e.*, lower power, lower antenna height, different location) than had been authorized in 2011. That application, as amended, was granted in March, 2012, despite the fact that the Apple translator remained on Station WKMK's channel and none of the complaints previously brought to the Commission's attention had even been addressed, much less corrected.

5. Apple resumed operation of the Translator on Channel 292 in April, 2012. Press promptly heard from hundreds of its listeners that they were again encountering interference. Press in turn alerted the Commission, which (at Press's suggestion) encouraged Apple and Press to undertake "on-off" testing. Based on such testing the Commission concluded that the translator was in fact causing interference to WKMK. Accordingly, the Commission ordered Apple to "immediately" reduce the translator's power to five watts. Apple operated briefly with those reduced facilities, during which time Press received approximately 40 additional complaints. Before the source of those instances of complained-of interference could be conclusively determined, however, Apple ceased operation.¹

6. In March, 2013, Apple acknowledged a point that Press had urged a year earlier, but which Apple had side-stepped – that the site specified in Apple's 2012 construction permit was unusable. Accordingly, Apple sought special temporary authority ("STA") to operate from a building in Long Island City with four watts of power. *See* BSTA-20130320ABV ("the 2013 STA Application").

7. That STA was granted in November, 2013, but Apple did not resume operation of its translator with the STA facilities until March 21, 2014, at which point it submitted an

¹ Based on the location of the complainants and the general nature and timing of the interference they have reported, Press has reason to believe that the interference was attributable to the translator. During the period the translator ceased operation, Press received no complaints of interference.

application (File No. BPFT- 20140328ACS) for permanent authority to operate from the Long Island City site with 40 watts of power, *i.e.*, ten times the power of its STA operation. While Press had theretofore received no listener complaints arising from Apple's reduced power STA operation, the ten-fold increase in power would have expanded the translator's signal into areas previously identified as locations from which Press's listeners have complained about interference from the translator's operation from previous sites. Accordingly, Press opposed Apple's 2014 application on April 11, 2014. Shortly thereafter, Apple amended its application to reduce the proposed power to four watts. Press did not object to the application as amended and it was granted on May 29, 2015, giving Apple a construction permit ("the 2015 permit").

8. Ever the optimist, in November, 2016, Apple filed yet another application (File No. BMPFT- 20161116AAH) proposing modification of its then-outstanding permit. Its proposal would have increased the translator's signal in the direction of WKMK approximately 100-fold. Unsurprisingly, Press objected to that application, and Apple promptly requested dismissal of its application on January 6, 2017, leaving the 2015 permit unchanged. Apple, however, failed to submit a covering license application with respect to the facilities specified in the 2015 permit prior to the permit's expiration date (*i.e.*, May 29, 2018), and that permit has therefore expired.

THE CURRENT PROPOSAL

9. Apple is now proposing to modify its translator's facilities again. Apple's latest application is short on both details and explanations relative to its proposal. We know for sure that the proposal would expand the translator's signal in some way, because Apple requests "a waiver for section 74.1204 of the rules towards Fm [sic] station [sic] WQXR-FM and WLTW," Apple Application, Exhibit (titled "Waiver Requested"). Precisely how Apple would achieve that result is not explained in any detail. However, closer inspection of the application reveals that

Apple is proposing to operate with both vertical *and* horizontal polarization; its current special temporary authorization (*i.e.*, the only authorization Apple has for its present operation) specifies vertical polarization only.

10. How it would add horizontal polarization is also not explained in detail, but, again, inspection of the application reveals a reference to proposed use of a “BEX Model LOG-R SLANT” antenna, Apple Application, Section III-A, Question 10. Presumably, Apple plans to use that “slant” antenna to transmit both horizontally and vertically. There’s a problem with that, though: the website of BEXT, Inc., manufacturer of BEX Log-R antennas, shows no “slant” antenna options. Apple’s 2013 STA application – which resulted in its current operating authority – specified a “BEX Model LOGR” (also referred to in that application as a “BEXT LOG-R ANTENNA PATTERN VERTICAL” antenna). As best Press can determine based on the sketchy information provided by Apple, Apple’s plan is to engage in some do-it-yourself legerdemain by manually tilting its existing antenna to some angle between vertical and horizontal in the hope of obtaining vertical and horizontal polarization. Of course, Apple neither discloses its plan explicitly nor provides any independent confirmation that such an approach would reliably yield results consistent with the Commission’s rules and thereby provide no interference to WKMK, WLTW or WQXR.

DISCUSSION

11. While Apple’s application has been accepted for filing, that acceptance was premature. Section 74.1204(f) expressly prohibits acceptance of an application if the predicted 1 mV/m field strength contour would overlap a populated area already receiving a regularly used, off-the-air signal of any authorized co-channel station and grant of the authorization will result in interference to the reception of such signal. Here, the Commission cannot say precisely

how far the translator's signal will go in any direction – and, therefore, whether that signal will interfere with the signals of any co- or adjacent-channel full-powered stations – because Apple has failed to provide data necessary for such a determination.

12. Normally, if an applicant is relying on some particular antenna-related attribute to produce some particular signal-related performance, the applicant provides the Commission with some demonstration that the attribute in question can be expected to perform as proposed. For example, in its 2013 STA Application Apple provided a pattern for its vertically-polarized antenna. No such pattern is provided with the current application. One likely explanation: the BEXT Log-R antenna in question does not appear to have been designed for simultaneous vertical and horizontal polarization. According to the specification sheet for the Log-R, the antenna may be either vertically *or* horizontally polarized. No “slant” alternative that might permit vertical *and* horizontal polarization is indicated. *See* Attachment A hereto (BEXT Log-R Antenna spec sheet).² While the sheet does make passing reference to possible “beam tilt” alternatives, the sheet specifies that such alternatives entail special requests and will affect the antenna's gain.

13. It is important to note that the BEXT Log-R antenna is a log-periodic device, as opposed to a simple dipole antenna. Where the latter transmits a predictable horizontal pattern in all planes – and, thus, its pattern may *be determined easily through the full range of possible orientations – the former does not. See* Attachment B hereto (engineering statement of

² In view of the fact that BEXT does not appear to offer any “slant” antenna options, Apple's reference in its application to a “BEX Model LOG-R SLANT”, without any further explanation, is misleading. That reference creates the obvious misimpression that Apple plans to use an antenna designed and manufactured expressly for use in some “slant” mode. From the BEXT website, however, no such antenna is available, which leads to the conclusion that Apple intends to jury-rig some ad hoc antenna configuration to suit its own purposes.

Timothy Z. Sawyer). Rather, a log-periodic antenna that is by its very design a directional antenna will have different horizontal radiation patterns when mounted vertically, horizontally, or somewhere between the two. It cannot be assumed that the same horizontal pattern shape exists in all planes

14. But if the Commission cannot determine the proposed pattern, it is equally unable to determine whether the proposed operation would be consistent with the rules regarding interference to full-powered stations. Moreover, in view of the apparent do-it-yourself nature of Apple's proposed antenna jiggering, even if an antenna pattern had been provided, a mere pattern would not provide all the necessary information. In order to assess the precise signal contour to be created by the proposed operation, the Commission would still need to know at what angle the antenna would be tilted.³ In this case, where the use of a non-standard (*i.e.*, neither vertical nor horizontal) antenna orientation of the radiating elements is proposed, a detailed pattern analysis of the horizontal radiated field pattern – as provided by the manufacturer, preferably based on field range testing – or its mathematical model (again, from the antenna manufacturer) must be provided by the applicant. In such supporting documentation the vertical and horizontal polarized radiated fields should be accounted for and combined as a composite horizontal pattern at a specified “slant” angle. Apple has not provided such a manufacturer-prepared pattern analysis or mathematical model, presumably because none is available, since (as noted above) the manufacturer's specifications for the antenna in question clearly indicate that such a “slant” operation was not contemplated.

³ Since the antenna does not appear to have been designed for “tilt” or “slant” operation, it is also not clear how Apple would install the antenna to conform to whatever it is in fact proposing here. More importantly, the Commission would be hard-pressed to know for sure whether the ultimate antenna configuration conforms with whatever authority the Commission might grant.

15. These are not trivial concerns. As noted above, Apple wishes to operate its secondary service translator in a geographic area already highly congested with full-power stations. Press knows from unfortunate first-hand experience the extensive, expensive harm that can be caused by translator interference – in Press’s case, interference from Apple’s own translator – and Press has no desire to re-live that experience. And even if Apple were able to demonstrate satisfactorily that WKMK would not suffer from the proposed translator modification, the congested nature of the local market suggests that other station(s) might be harmed. Regardless of what stations might be subject to interference, the radio-listening public should not be forced to suffer even temporary loss of their preferred stations. It is incumbent upon Apple to provide the Commission (as well as potentially affected full-powered licensees) with sufficient information to allow them to determine, *before* Apple’s application is considered, whether such harm is likely. And, of course, if there is indeed a likely threat of interference, the application must be dismissed or denied.

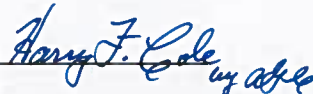
16. Press regrets having to challenge yet again proposals relative to Apple’s translator, but Press’s concerns, dating back nearly a decade, remain valid: the translator, operating on WKMK’s channel in an area in which WKMK has established listenership, has repeatedly caused interference to WKMK and, absent some unanticipated change(s) in the laws of physics, will continue to do so if the translator is permitted to operate with anything more than its current, minimal, STA facilities.⁴ WKMK is a full-service station which, as a primary service, is entitled to priority over secondary service facilities such as the translator. Under these

⁴ This is not to say that those STA facilities do not themselves cause interference – they do. Press has received reports from listeners describing occasional interference from a signal that appears to be Apple’s translator. As this time, however, Press cannot assert with confidence that WKMK has listeners within the interfering reach of the translator’s STA operation.

circumstances, continued authorization of the translator at all disservices WKMK's audience and runs counter to the longstanding regulatory hierarchy within the FM service; at a minimum, any changes to the translator's facilities must be scrutinized thoroughly in order to prevent further harm to WKMK or any other full-service station that might suffer from Apple's operation.

WHEREFORE, for the reasons stated, Press Communications, LLC submits that action on the above-captioned application should be held in abeyance unless and until (a) Apple provides detailed technical information sufficient to permit reliable assessment of the proposed signal that would result from the proposed facilities and (b) it is conclusively determined from that information that no harmful interference will result therefrom.

Respectfully submitted,

/s/ Harry F. Cole 
Harry F. Cole

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Counsel for Press Communications, LLC

January 31, 2019

ATTACHMENT A



Telecom
RADIO ANTENNAS

LOG R FM

*Vertically or Horizontally
Polarized (field selectable)
Directional, Log Periodic
Broadband FM Antenna
87.5 – 108 MHz*

- Lightning Protection – All metal parts DC grounded
- Compact & lightweight – can be disassembled for shipping and ease of field assembly
- Excellent front to back ratio
- Null fill, beam tilt and custom applications upon request

Impedance: 50 Ohm

Pattern: Directional

Max VSWR: < 1.2:1

Front to back ratio: > 20 dB

Construction: Aluminum & Steel

Input connector: "N" Type female or 7-16 Type female (on each individual bay)

Power rating for each individual bay): 550 W for "N" type version; 1100 W for 7-16 type version

Gain: (for each individual bay) 6.3 dBd, 8.44 dBi, Power Gain 4.3

Bracket: Can clamp on supports 1" to 3" (25 mm to 7.62 mm) diameter

Typical center to center distance: (in multi-bay arrays) 8 1/2 ft (2.6 meter)

Approximate dimensions: (per bay) 56" x 68 1/2" x 3 1/2" (1422mm x 1740mm x 89mm)

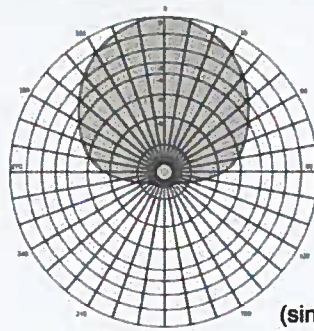
Typical boxed size: (per bay) 6" x 6" x 63" (152mm x 152mm x 1600mm)

Typical weight: (per bay) 10 Lbs / 4.5 Kg (boxed)

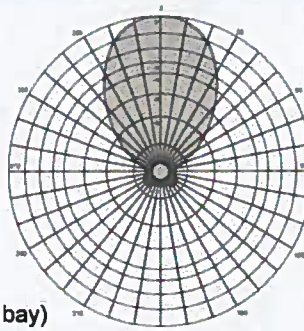
Number of Bays	Gain (dbd)	Power Gain	Gain dBi	PWR Rating N Version	PWR Rating 7-16 Version	Vertical Height ft / m.	Req. (*) Vertical Tower Space ft/ m.
1	6.3	4.3	8.4	550 W	1100 W	5' 8" / 1.74	14' 4" / 4.37
2	9.3	8.5	11.4	1 kW	2 kW	14' 3" / 4.34	22' 10" / 6.97
3	11.1	12.8	13.2	1.5 kW	3 kW	22' 9" / 6.94	31' 5" / 9.57
4	12.3	17	14.4	2 kW	4 kW	31' 3" / 9.54	39' 11" / 12.17
5	13.3	21.3	15.4	2.5 kW	5 kW	39' 10" / 12.14	48' 5" / 14.77
6	14.1	25.6	16.2	3 kW	6 kW	48' 4" / 14.74	57' / 17.37
8	15.3	34.1	17.4	4 kW	8 kW	65' 5" / 19.94	74' / 22.57

Values shown are typical. Actual values may vary with each specific installation. Attenuation of connecting cables not taken into account. Gain will be affected if null fill, beam tilt or special wavelength spacing is required. If antenna is side mounted, the supporting structure will have a slight effect on radiation pattern and on VSWR. Contact us with details of your installation for customized data. Total tower space recommended allows 5 ft (1.5 m) of clear tower space above and below the mounting area to protect from pattern interference by other antennas. On all multi-bay arrays, we suggest extending support pipe 5 ft (1.5 m) above the top bay and below the bottom bay.

Typical H Plane Pattern



(single bay)



Typical E Plane Pattern

ATTACHMENT B

T.Z. SAWYER TECHNICAL CONSULTANTS

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TELEPHONE (703) 848-2130

ENGINEERING STATEMENT AND
AFFIDAVIT OF TIMOTHY Z. SAWYER
IN SUPPORT OF PETITION TO DENY
APPLE 107.1, INC. MODIFICATION OF
FACILITIES OF W292DV
BPFT-20190122AHG

January 31, 2019

I, Timothy Z. Sawyer, dba T Z Sawyer Technical Consultants, do hereby attest that I have reviewed the petition to deny of which this affidavit and combined engineering statement are part and that I believe the statements contained within the petition are true and correct.

I offer the following further comments of engineering interest regarding the radiation characteristics of the applicant's proposed antenna.

The horizontal pattern (shape) and mixed polarization that is proposed by the applicant cannot be achieved by simply physically slanting the applicants log periodic antenna radiating elements at an angle (an angle unspecified by the applicant).¹

Slanting a log periodic antenna and predicting its horizontal radiation pattern becomes problematic because of the directional characteristics of the antenna. The antenna as proposed in the application if slanted would not produce the expected

¹ Cross Dipoles or other like methods are typically used where a vertical and a horizontal component are propagated (launched) simultaneously. While a log periodic antenna can be described as complex form of a series of dipoles, it lacks a method to propagate each component (H & V). The results as proposed in the application is a wave-front that is simply slanted.

results in the horizontal radiated field pattern that the applicant has submitted in its application (as tabulated on the form).

The horizontal plane radiation patterns for the E (electrical) and H (magnetic) fields of any antenna are 90 degrees to each other, as the angle/rotation of the antenna radiating element is changed from vertical to horizontal the characteristics of the E and H fields become interchangeable.^{2 3}

The electric field or "E" plane determines the polarization or orientation of the radio wave. As the antenna radiating elements are slanted in the proposal, simple logic would dictate that some mixture of the E and H field (and their interchangeable roles) would intertwine producing a modified horizontal field pattern . . . but to what degree? How do the mixed E and H fields resultant vectors add? ...and at what horizontal azimuth?

The antenna gain would also be expected to change at the horizon as the RMS of the directional pattern would change. Antenna gain is a function of determining correct effective radiated power, so round and round we go until answers are provided.

Only the antenna manufacturer can provide authoritative answers as to the performance of its product under these nonstandard and undocumented orientations of the radiating elements.

Summary:

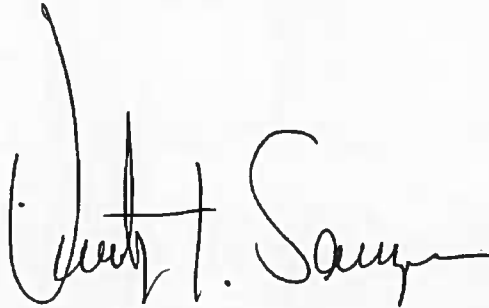
The horizontal radiation pattern as tabulated on the FCC Form 349 appears to match the applicants current STA authorization for a vertical polarized antenna only. You

² As the polarization of the radiating element is changed from vertical to horizontal the characteristic radiation pattern of the E and H fields will change too. In effect, the pattern for H becomes E and E becomes H when the change in antenna polarization is changed by 90 degrees.

³ The antenna's E and H fields are plotted on the manufacturers data sheet attached as Addendum A to the petition.

cannot simply slant this particular type of antenna at an angle and expect its horizontal radiated pattern (shape) to remain unchanged from that used for vertical polarization.

January 31, 2019

A handwritten signature in black ink, appearing to read "Timothy Z. Sawyer". The signature is fluid and cursive, with a large initial "T" and "S".

Timothy Z. Sawyer, Consulting Engineer

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CERTIFICATE OF SERVICE


I, Harry F. Cole, hereby certify that, on this 31st day of January, 2019, I caused a copy of the foregoing "Petition to Dismiss or Deny or, in the Alternative, Informal Objection" to be transmitted electronically, or placed in the U.S. mail, first class postage prepaid, addressed to the following:

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/s/ Harry F. Cole 
Harry F. Cole